



CASE PP/1-22766/A/CGC 2128

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF
NIKOLAS KAPRINIDIS ET AL
APPLICATION NO: **10/675,154**

Group Art Unit: **1714**
Examiner: **Kriellion A. Sanders**

FILED: **September 30, 2003**
FOR: FLAME RETARDANT POLYMERIC
ELECTRICAL PARTS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER RULE 132

Nikolas Kaprinidis, the undersigned, states:

That I received a Ph.D. in Chemistry from New York University, 1994;

That I have been employed by Ciba Specialty Chemicals Corporation since 1996;

That I have approximately 15 years of chemical research and development experience; that from 1996 to date I have worked in the Research and Development laboratories of Ciba Specialty Chemicals Corporation;

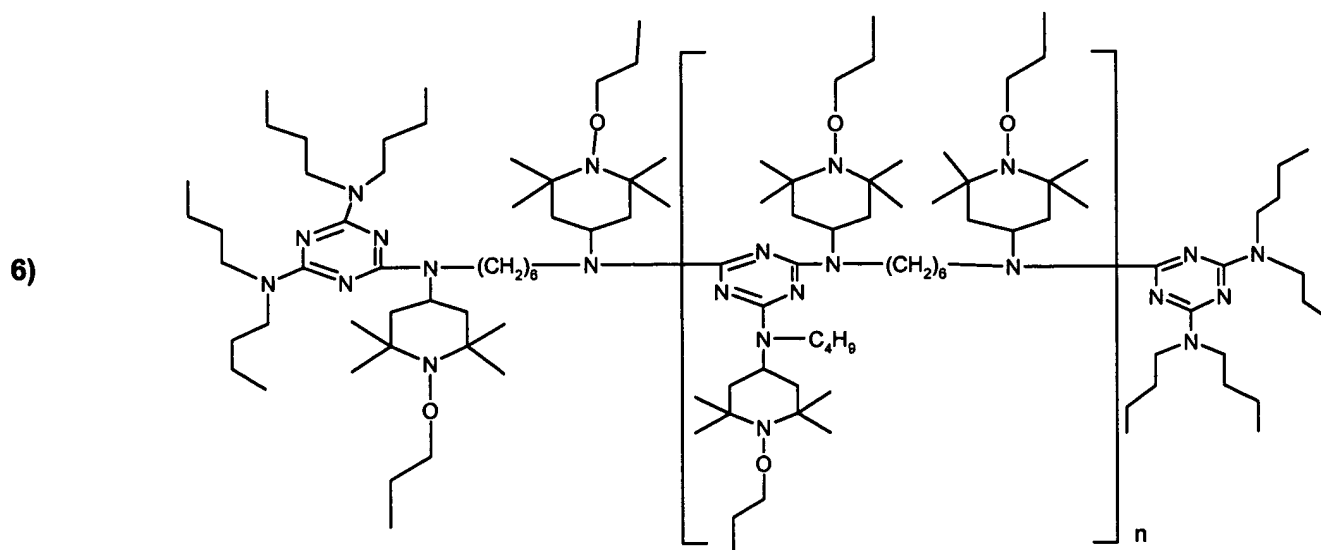
That the following experiments were performed by me or under my supervision.

Polypropylene (Basell PROFAX PH350) pellets are blended with additives in a Turbula mixer for 15-20 minutes. Formulation size is 700g. The mixtures are extruded with a 27mm Leistritz twin screw extruder. Zone temperatures are 150°C, 150°C and 200°C. The obtained resin is pelletized by

a cutter and dried prior to injection molding. Injection molding is done between 200°C and 232°C. Test bars, 1.6mm, are prepared for UL94 test.

The following hindered alkoxyamine compounds are tested:

- 1) control:** no hindered alkoxyamine
- 2) control:** bis(1-octyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate;
- 3) the reaction product of 2,4-bis[(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl)butylamino]-6-chloro-s-triazine with N,N'-bis(3-aminopropyl)ethylenediamine** [CAS Reg. No. 191680-81-6]
- 4) bis(1-cyclohexyloxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate**
- 5) bis(1-methoxy-2,2,6,6-tetramethylpiperidin-4-yl) sebacate**



The alkoxyamine compounds are each present at 1% by weight based on polypropylene.

Each of the six formulations contains the organohalogen flame retardant tris[3-bromo-2,2-bis(bromomethyl)propyl] phosphate at 14% by weight, based on polypropylene.

Flame resistance is tested according to UL-94. Ratings are as below.

Rating	Afterflame time	Burning drips	Burn to Clamp
V-0	< 10 s	no	no
V-1	< 30 s	no	no
V-2	< 30 s	yes	no
Fail	< 30 s		yes
Fail	> 30 s		no

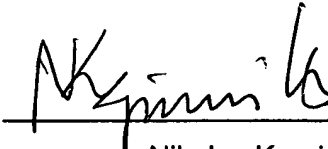
The results are as follows:

Formulation	UL-94 rating
1)	V2
2)	V2
3)	V0
4)	V0
5)	V0
6)	V0

Surprisingly, the formulations containing both an organohalogen flame retardant and a hindered methoxy, propoxy or cyclohexyloxy alkoxyamine group at these weight levels and weight ratios meet the stringent V0 UL-94 test. Surprisingly, the present alkoxyamines perform much better than an octyloxy hindered amine compound.

These results could not have been expected based on the prior art.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

 9/22/2008

Nikolas Kaprinidis